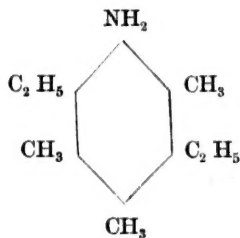


According to the researches of Froelich,* the methyl groups in pseudo-cumidine, occupy the positions 2, 4 and 5, the amido group being 1. There are thus only the positions 3 and 6 left for the ethyl groups to fill. The constitutional formula for the base is therefore—



ON THE OCCURRENCE OF SCOLITHUS IN ROCKS OF THE CHAZY FORMATION ABOUT OTTAWA, ONTARIO.

By HENRY M. AMI, M.A., F.G.S.

For years past, the occurrence of *Scolithus* in the lower portion of the Cambro-Silurian or Ordovician strata, as it is developed in the St. Lawrence and Ottawa Valleys, as well as in the State of New York and elsewhere, was almost invariably taken as the best indication of the presence of the Potsdam formation.

Scolithus Canadensis, as described by the late Mr. E. Billings in his first volume of the Palæozoic Fossils, p. 96, was shewn to be eminently characteristic of the Potsdam formation, its occurrence in a number of localities having been recorded by him. Since then it has also been found in rocks of the same horizon in various other localities, and well recognized by geologists in general.

The form *Scolithus linearis*, of Hall, is also referred to by Mr. Billings, as occurring in the measures of the Potsdam, as seen at L'Anse au Loup (*loc. cit.* p. 2), but in no other Cambrian or Ordovician formation have the remains of *Scolithus* been recognised as yet, as far as the writer is aware.

* Berichte, xvii, 2573.

In the examination of the measures of the Chazy formation about Ottawa, however, the writer has observed numerous scolithoid remains from strata newer than those at L'Anse au Loup or at Ste. Anne's, Beauharnois, &c.

At the Hog's Back, Nepean, in the county of Carleton, Ont., about three miles from Ottawa city, the Chazy formation crops out in the shape of a partially denuded anticlinal, exhibiting on the eastern side of its axis a considerable thickness of strata consisting of sandstones, sandy shales with calcareous matter, and limestones, given in their natural and stratigraphical sequence from the base up. Some of the shales in the exposure are decidedly argillaceous in character, and hold abundance of a species of *Lingula*—the *L. Belli* (Billings). This band marks a well defined zone in our Chazy formation, and is referred to as the zone of *Lingula Belli* (see Geol. Rep. Trans. O. F. N. C., 1885-1886.) Above this zone, and a few feet above the *Scolithus* horizon, the "Leperditia band" occurs here in its normal condition, as described by Sir William Logan and Mr. Billings in the publications of the Geological Survey of Canada at various dates, so that the intermediate beds of an arenaceous nature, on careful examination, are seen to contain abundance of a species of *Scolithus* differing but little, if any, from the true *S. Canadensis* (Billings). The characters of this last agree admirably with the form of those from Hog's Back, although there is no doubt whatever as to the age of the series in question being Chazy.

The second place where the genus in question has been observed is at Britannia, Ont., near the southern shores of Lake Des Chênes, on the Ottawa River, six miles west of Ottawa city. There at Britannia, some four hundred yards south-west of the railroad crossing or station, numerous remains of a species of *Scolithus* were collected on the occasion of the excursion of the Field Naturalists' Club, in September, 1885. On finding it, the question arose, and has since formed the subject of a slight controversy, as to whether or not the rocks there were really Chazy, or that on account of the occurrence of these annelid (?) burrows, the rocks ought to be ascribed to the age of the Potsdam

formation. Fortunately, the occurrence of a similar form in the Chazy of Hog's Back had been previously ascertained so that this fact, coupled with the one that the almost perfectly horizontal strata on the Quebec side of the Ottawa, were truly Chazy, and characterised by the prevalence of such types as *Orthis imperator* (Billings), and a *Rhynchonella* not distinguishable from the *R. plena* of Hall—which measures extended across the river to the Ontario side, beneath the waters of the lake and rapids, without a fault or dislocation in well-nigh horizontal beds—make it beyond doubt that these rocks at Britannia are truly Chazy.

From these two instances, it follows that the occurrence of *Scolithus* remains does not necessarily indicate the existence of Potsdam rocks, but that the beds may possibly be newer or higher up in the series. These cases also indicate the necessity of obtaining collateral evidence of every nature, whether palæontological or stratigraphical, in order to ascertain with any degree of accuracy the precise geological horizon of strata.

THE RHYTHM AND INNERVATION OF THE HEART OF THE SEA-TURTLE.*

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The present paper is intended in part as a continuation of a shorter one which appeared in Nos. 4, 5, 6, of vol. v. of the *Journal of Physiology* on the same subject; but more especially as a continuation of my work on Chelonian heart physiology in general. So far as I know there does not exist in physiology a *systematic* comparison of the resemblances and differences of any one family or genus. I propose therefore to do for the Chelonians in physiology, to some extent at least, what has been done for them in morphology.

It has hitherto been believed that animals resembling

* This paper has also very recently appeared in the *Jour. of Anat. and Phys.*, Edinburgh.

